

Amendments to the Claims

Please replace all prior versions and listings of claims with the following listing of claims.

1. (Currently Amended) A flow-through capacitor system comprising a plurality of flow-through capacitor cells, each of said plurality of cells in electrical communication with one charge cycle sequence controller wherein the system is constructed and arranged so that the charge sequence controller individually controls charging of each of said plurality of cells, wherein individual flow-through capacitor cells, or groups of cells, are controlled in a timed sequence and charge cycles between individual flow-through capacitor cells are either asynchronous or out of phase by at least one quarter second so as to reduce the power requirement for a power supply for the system.
2. (Original) The flow-through capacitor system of claim 1, further comprising a plurality of current collectors and a flow spacer shared among said plurality of current collectors.
3. (Original) The flow-through capacitor system of claim 1, which is operated such that multiple concentration bands exist simultaneously within a given material layer.
4. (Original) The flow-through capacitor system of claim 1, further comprising a conductivity controlled valve between at least two of said plurality of current collectors.
5. (Previously Presented) The flow-through capacitor system of claim 1, further comprising a flow stream path parallel to at least two of said plurality

of current collectors, with continuous purification and concentration streams directed to separate collection paths.

6. (Previously Presented) The flow-through capacitor system of claim 5, wherein fluid is manipulated to form adjacent purification and concentration streams that are separately collected without need for a valve.

7. (Original) The flow-through capacitor system of claim 1, wherein valves are individually triggered with charge cycles in order to produce a purified product stream.

8. (Original) The flow-through capacitor system of claim 1, wherein said flow-through capacitor system has a staging efficiency of 50% or more.

9. (Previously Presented) The flow-through capacitor system of claim 1, wherein said flow-through capacitor system has a power efficiency of 50% or more.

10. (Previously Presented) The flow-through capacitor system of claim 1, wherein charge cycles of individual cells are synchronized to correspond with the arrival of a segment of purified liquid traveling serially through multiple cells.

11. (Original) The flow-through capacitor system of claim 1, wherein voltage is incremented in a step wise fashion as cells are sequentially powered by adding them in series.

12. (Original) The flow-through capacitor system of claim 1, wherein cells are powered by sequentially switching them together in parallel.

13. (Previously Presented) The flow-through capacitor system of claim 1, configured to vary voltage along a flow path.

14. (Original) The flow-through capacitor system of claim 1, wherein charged capacitor cells are used to power discharged capacitor cells.

15. (Original) The flow-through capacitor system of claim 14, comprising a DC to DC converter between cells or groups of cells.

16. (Cancelled)

17. (Currently Amended) The flow-through capacitor system of claim 16, wherein each of said cells is contained in a cell holder and each cell holder contains no more than one of said cells, said cell holder being a container, a cartridge holder, or a casing.

18. (Cancelled)

19. (Currently Amended) The flow-through capacitor system of claim 16, wherein the timed sequence is charge cycles are actuated by a timer, a conductivity reading, a voltage, or pH.

20. (Currently Amended) The flow-through capacitor system of claim 16, wherein valves to individual cells or groups of cells that dispose of waste, deliver purified fluid, or which recycle in flow loops are triggered synchronously or asynchronously together with charge cycles.

21. (Currently Amended) The flow-through capacitor system of claim 16, configured to reduce peak wattage of power supply to the flow-through capacitor system by at least 30%.
22. (Currently Amended) The flow-through capacitor system of claim 16, wherein each of said cells is actuated between one and 359 degrees out of phase.
23. (Currently Amended) The flow-through capacitor system of claim 16, wherein sequential operation of charge cycles follows the direction of flow.
24. (Currently Amended) The flow-through capacitor system of claim 16, comprising a power management system to share power between the cells, said power management system comprising one or more selected from: a battery, a fuel cell, and a generator.
25. (Currently Amended) The flow-through capacitor system of claim 16, wherein failed or short circuited cells are bypassed by means of a sensing circuit.
26. (Currently Amended) The flow-through capacitor system of claim 16, wherein either the purified product or concentrated waste segments of liquid from one or more cells or cell groups are combined together.
27. (Original) The flow-through capacitor of claim 26, wherein said system achieves better than 40% recovery or purification.
28. (Previously Presented) The flow-through capacitor of claim 26, wherein said segments of liquid are combined through a manifold.

29. (Currently Amended) The flow-through capacitor system of claim 16, wherein a dead volume due to a flow spacer is larger than a dead volume between at least one of the cells and the inside of a cartridge holder.

30. (Original) The flow-through capacitor system of claim 2, wherein two or more cells are contained within a single cell holder, said cell holder being a container, a cartridge holder, or a casing.

31. (Original) The flow-through capacitor system of claim 30, wherein the plurality of current collectors bracket a stack of true series electrode assemblies.

32. (Original) The flow-through capacitor system of claim 10, wherein current declines with each successive charge cycle.

33. (Original) The flow-through capacitor system of claim 10, wherein at least one of said cells differs in size from at least one other of said cells.

34. (Cancelled)

35. (Cancelled)